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Claims:

1. Continuous process for the manufacture of triethanolamine (TEA) comprising, in succession:

(i) a step of synthesizing the TEA by continuously bringing ammonia into contact with ethylene oxide, under conditions allowing the formation of a reaction mixture comprising mono- di- and tri-ethanolamines,

(ii) a step of continuously separating the ammonia that has not reacted from the reaction mixture; and

(iii) a step of continuously separating the TEA from the mixture resulting from step (ii),

which process is characterized in that, in the last step, a specific mixture of alkanolamines comprising TEA and from 0.5 to 50% by weight of at least one secondary dialkanolamine is prepared or isolated from the mixture resulting from step (ii), and in that the TEA is separated and isolated with a degree of purity equal to or greater than 99.2% by weight, by continuous distillation of the specific mixture of alkanolamines.

2. Process according to Claim 1, characterized in that the secondary dialkanolamine is chosen from diethanolamine, diisopropanolamine, di-n-propanolamine and di-n-butanolamine.

3. Process according to Claim 1, characterized in that the secondary dialkanolamine is diethanolamine.

4. Process according to any one of Claims 1 to 3, characterized in that the TEA is separated and isolated by lateral withdrawal from a distillation column continuously fed

with the specific mixture of alkanolamines.

5. Process according to any one of Claims 1 to 4, characterized in that the TEA is separated and isolated by a continuous distillation of the specific mixture of alkanolamines resulting from a prior distillation or at least two prior distillations of the mixture resulting from step (ii), comprising the removal of the monoethanolamine and of some of the diethanolamine.

6. Process according to any one of Claims 1 to 5, characterized in that the TEA is separated and isolated by a continuous distillation of the specific mixture of alkanolamines coming from the withdrawal from the bottom of a prior distillation column intended for separating and isolating beforehand some of the diethanolamine existing in the mixture resulting from step (ii).

7. Process according to any one of Claims 1 to 6, characterized in that the TEA is separated and isolated by a continuous distillation of the specific mixture of alkanolamines coming from the withdrawal from the bottom of a prior distillation column, intended for separating and isolating a TEA having a degree of purity of less than 99% by weight.

8. Triethanolamine (TEA) obtainable by the process according to any one of Claims 1 to 7 and characterized in that the said TEA has:

i) a degree of purity equal to or greater than 99.2% by weight;

ii) a residual content of secondary dialkanolamine of less than 2000 ppm;

iii) a sulphuric ash content of less than 300 ppm, measured according to the V.3.2.14 Standard of the European Pharmacopoeia (1994 Edition); and

iv) a colour index of less than 120 Hazens, measured according to the ASTM D 1209 Standard, after the said TEA has undergone a hot-ageing test at 140°C in an inert atmosphere for a period of 4 hours.

9. Triethanolamine according to Claim 8, characterized in that:

i) the degree of purity is equal to or greater than 99.5% by weight;

ii) the residual content of secondary dialkanolamine is less than 1000 ppm;

iii) the sulphuric ash content is less than 100 ppm; and

iv) the colour index is less than 80 Hazens after the said TEA has undergone the hot-ageing test at 140°C in an inert atmosphere for a period of 4 hours.

10. Triethanolamine according to Claim 8, characterized in that:

i) the degree of purity is equal to or greater than 99.7% by weight;

ii) the residual content of secondary dialkanolamine is less than 500 ppm;

iii) the sulphuric ash content is less than 10 ppm; and

iv) the colour index is less than 40 Hazens after the said TEA has undergone the hot-ageing test at 140°C in an inert atmosphere for a period of 4 hours.